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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,108	08/20/1999	OLAF DICKER	99P7740US	8733

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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
186 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

14

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/378,108

Applicant(s)

DICKER ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/8/03 has been entered.

Response to Amendment

2. **Claims 1-22** as amended are still in consideration for this application. Applicant has amended independent claims 1, 7, 15, 21, and 22.

3. Examiner does **not withdraw** the obviousness rejection to *Deutsch* in view of *Kashorda* for Office action filed 5/13/03. Examiner does not agree with the applicant's analysis of the references given applicant's limited disclosure. At issue is the following claim limitation:

"block any poor quality frequency set from the plurality of frequency sets"

Limited support for the limitation is provided in the following paragraph of applicant's written disclosure:

"The frequency hopping scheme, in addition to selecting frequencies, may also implement a scheme for optimizing the quality for each individual channel. For example, a PCS microwave tower may interfere with frequencies in the ISM band in a particular region. Thus, system would not want to use those frequencies in those on channels so affected. One such method to optimize the quality for an individual channel is to avoid such bad frequency subsets by blocking their selection from that channel. By dividing the ISM band into ninety-six frequencies, the embodiment of FIGURE 3 provides sufficient frequencies to allow bad frequencies to be blocked while keeping the number of available frequencies above the seventy-five frequency threshold. For example, there is freedom to avoid using the frequencies within two subsets without dropping below the seventy-five frequency threshold." [Page 7, lines 18-28]

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Examiner notes that *Deutsch* inherently teaches the above limitation. *Deutsch* discloses a frequency selection using a plurality of subbands (e.g., 10 subbands [column 6, line 54]). Thus figure 4 of *Deutsch* is divided into the appropriate number of subbands (i.e., subsets). Applying the 6-step algorithm disclosed at column 6, lines 54-63 yields the data in figure 5 of *Deutsch*. As taught by the reference, if interference occurs on a particular time-slot for a group, then a frequency from the next group is selected in order to overcome the interference. For example, in the sequence B1, B2, B3, B4 .. B50, if B3 for time slot 3 has interference, then the system will “select” C3 such that the new sequence will be B1, B2, C3, B4, ... B50 [see column 6, lines 5-12]. Inherently taught in the “selection” is a different frequency from a different subband (i.e., subset). A different frequency is selected from a different sequence given the recursive nature of the algorithm in step 4 [column 6, lines 54-63]. As a different frequency is “selected” from a different subband, examiner notes that the reference inherently teaches to “block any poor quality frequency set from the plurality of frequency sets” in light of applicant’s written disclosure as presented above at page 7, lines 18-28. In other words, if one of the frequencies in the frequency set has interference then all the frequencies in that frequency set are not selected or “blocked” for that channel since a different frequency in another frequency set is selected given the recursive nature of the algorithm. In closing, the system proposed by *Deutsch* optimizes the selection process of a new channel if interference is found since the new channel selected is not selected from the same frequency subset (i.e., the frequency set is blocked).

Examiner has further clarified the rejection for claim 6 below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,848,095 to *Deutsch et al* ("*Deutsch*") (mentioned on a previous Office action) and "A Spectrum Efficient Technique for Cordless Telephone Access to ISDN" by *Kashorda et al.* ("*Kashorda*")

As to **claims 1, 7, 15 and 21-22**, *Deutsch* discloses an adaptive frequency hopping method for using pre-established frequency assignments in a plurality of time slot groups which are separated by a minimum distance (i.e., "spectral separation" using a reasonable but broad interpretation). Taught is a communication between a remote unit 14 and a base unit 12 in a wireless telephone system such as a cordless phone system [column 5, lines 59-63] (see claim 1 with further emphasis for a cordless system with respect to a wireless telephone system). Shown in figure 4, each frequency of a frequency set corresponds to a channel (i.e., a spectrum is broken up into 200 different sets of frequency/channel pairs). Using the adaptive frequency plan described at column 6, lines 54-64, each of the 200 channels are further divided into 10 subbands (step 1) where a random sequence of the subbands is created for each group (i.e., a group such as Group A shown in figure 3). Hence shown in figure 6 are 5 random sequences of the 10 subbands for a total of 50 frequency hops (steps 2-3) using 50 channels (these channels

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are not channel/links as recited by applicant). Next, for each sequencing, a channel is randomly selected for each subband/sequence (step 6). The key is that for each group (i.e., the four groups: Group A – Group D), the random sequence is advanced one place in a random sequence (step 4), which is key since this ensure a “spectral separation” between groups [column 2, lines 54-63].

Examiner notes that the reference is silent or deficient to a “plurality of individual communications channels between a first data station and a second data station” (e.g., channels/links 12(a)-12(d) as disclosed in relation to applicant’s specification). Examiner notes the reference teaches that a remote unit 14 communicates with base station 12 through RF transceiver 210 which receives signals from and transmits signals to base station 12 through antenna 22 (i.e., it is not clear whether these radio signals are in parallel using multiple lines/channels, or serial using a single line/channels) [column 4, lines 23-26]. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use more than one channel between a radio base station and a remote station for transferring data, the motivation being that a higher bandwidth capacity can be formed by using more than one data channel at a time. This is further emphasized in the background of *Kashorda* (and not the main body of the article which discloses multiplexing both voice and data over a single channel), disclosing that in particular the cordless telephone user may only have on demand access to a variable capacity data channel (i.e., multiple logical channels), where the capacity is dynamically allocated in accordance with user demands [page 15]. Thus in choosing another unique carrier frequency for more than one channel using the teachings of *Deutsch*, examiner

notes that for each particular time slot that the next channel must be on a different group than the previous channel such that the two channels are “spectrally separated”. For example, in using figure 3 as a guideline, for a first time slot 1, if a first link is using A1 then a second channel/link must choose from B1, C1, or D1 in that time slot. Examiner furthermore notes that if interference occurs on A1 for a first channel/link where the first channel/link is forced to use B1 (as an example) the second link must use a different channel which cannot already be assigned (see step 6 column 6, line 65).

As both references disclose wireless communications between a base station and a remote unit, and more specifically, cordless communications, examiner notes a motivation to combine the subject matter as a whole for both references.

As to **claim 2, and 19**, both references disclose operating in duplex. *Deutsch* discloses time division duplexing (TDD) [column 4, line 62].

As to **claims 3, 4, 13, and 16**, *Deutsch* discloses using a frequency offset (i.e., minimum distance of 2 MHz). Using a reasonable but broad interpretation of the claim language, the minimum distance is optimal spectral spacing [column 2, lines 54-64; column 6, lines 26-36].

As to **claims 5 and 12**, *Deutsch* discloses a frequency hopping scheme.

As to **claims 6**, *Deutsch* discloses a method to “model interference encountered over individual channels between the data stations” using a reasonable but broad interpretation of “model” (i.e., examiner notes an “adaptive” method given applicant’s written disclosure on page 8, line 23). In particular, *Deutsch* discloses modeling interference through monitoring a link using the RSSI (i.e., an error rate) as well as

“signals indicating channel quality” [column 5, lines 45-51]. Thus *Deutsch* teaches a step to “model interference”. Examiner also notes a broad but reasonable interpretation of “select parameters” that minimize the loss of information. In particular, examiner notes that the frequency hopping scheme proposed by *Deutsch* minimizes the loss of information. Examiner notes that it would have been obvious to one skilled in the art to adjust the parameters in the algorithm (i.e., select parameters) where these parameters minimize the loss of information over each of the individual channels. For example, such parameters to modify are disclosed by *Deutsch* at column 6, lines 40-41. Motivation for adjusting the parameters is disclosed at column 7, lines 1-2. Thus *Deutsch* also discloses “select parameters” that minimize the loss of information over each of the individual channels. Examiner would like to furthermore point out that applicant does not claim particular ways of modeling interference of selecting parameters thus leaving room for a very broad but reasonable interpretation for the recited claimed subject matter.

As to **claim 9, 10, 17 and 18**, see the rejection for claim 6.

As to **claim 8**, the throughput of the combine channels/links is equal to the maximum throughput using a reasonable but broad interpretation of the claim.

As to **claims 11 and 20**, *Deutsch* discloses determining parameters at predetermined intervals of time using a reasonable but broad interpretation.

As to **claim 14**, *Deutsch* also discloses using a table for selecting frequencies from a subband [column 5, lines 41-44].

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663


DWF


CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600 10/6/03